CLAIMS

1. A nucleic acid encoding a chimeric enzyme, wherein said chimeric enzyme comprises a catalytic domain of a first glycosyltransferase and a localisation signal of a second glycosyltransferase, whereby when said nucleic acid is expressed in a cell said chimeric enzyme is located in an area of the cell where it is able to compete for substrate with a second glycosyltransferase, resulting in reduced levels of a product from said second glycosyltransferase.

2. A nucleic acid according to claim ~~1~~, wherein said localisation signal localises said catalytic domain thereby to enable the catalytic domain to compete with said second glycosyltransferase for a substrate.

3. A nucleic acid according to claim 1 ~~or claim 2,~~ wherein the localisation signal is derived from a glycosyltransferase which produces glycosylation patterns which are recognised as foreign by a transplant recipient.

4. A nucleic acid according to ~~any one of claims 1 to 3,~~ wherein the localisation signal comprises the amino terminus of the second glycosyltransferase.

5. A nucleic acid according to ~~any one of claims 1 to 4,~~ wherein the localisation signal is derived from α(1,3)-galactosyltransferase.

6. A nucleic acid according to ~~any one of claims 1 to 5,~~ wherein the first glycosyltransferase is selected from the group consisting of H-transferase, secretor sialyltransferase, a galactosyl sulphating enzyme or a phosphorylating enzyme.

7. A nucleic acid according to ~~any one of claims 1 to 6,~~ wherein the catalytic domain and the localisation signal each originates from a mammal selected from the group consisting of human, primates, ungulates, dogs, mice, rats and rabbits.

8. A nucleic acid according to ~~any one of claims 1 to 7,~~ wherein the localisation signal is derived from the

same species as the cell which the nucleic acid is intended to transform.

9. A nucleic acid according to ~~any one of claims 1 to 8~~, comprising a sequence encoding the catalytic domain of H transferase and a nucleic acid sequence encoding a localisation signal from Gal transferase.

10. A nucleic acid according to claim ~~9~~, wherein the catalytic domain and the localisation signal are derived from pigs.

11. A nucleic acid according to ~~any one of claims 1 to 10~~, which encodes gtHT as defined herein.

12. A vehicle comprising a nucleic acid according to ~~any one of claims 1 to 11~~.

13. vehicle according to claim ~~12~~, selected from the group consisting of an expression vector, plasmid and phage.

14. A vehicle according to claim ~~12 or claim 13~~, which enables said nucleic acid to be expressed in prokaryotes or in eukaryotes.

15. An isolated nucleic acid molecule encoding a localisation signal of a glycosyltransferase.

16. An isolated nucleic acid molecule according to claim ~~15~~, wherein the signal encoded comprises an amino terminus of gal-transferase.

17. A method of producing a nucleic acid according to ~~any one of claims 1 to 11~~, comprising the step of operably linking a nucleic acid sequence encoding a catalytic domain from a first glycosyltransferase to a nucleic acid sequence encoding a localisation signal of a second glycosyltransferase.

18. A method of reducing the level of a carbohydrate exhibited on the surface of a cell, said method comprising causing a nucleic acid to be expressed in said cell wherein said nucleic acid encodes a chimeric enzyme which comprises a catalytic domain of a first glycosyltransferase and a localisation signal of a second glycosyltransferase, whereby said chimeric enzyme is located in an area of the

cell where it is able to compete for substrate with said second glycosyltransferase, and wherein said second glycosyltransferase is capable of producing said carbohydrate.

19. A method of producing a cell from a donor species which is immunologically acceptable to a recipient species by reducing levels of carbohydrate on said cell which cause it to be recognised as non-self by the recipient, said method comprising causing a nucleic acid to be expressed in said cell wherein said nucleic acid encodes a chimeric enzyme which comprises a catalytic domain of a first glycosyltransferase and a localisation signal of a second glycosyltransferase, whereby said chimeric enzyme is located in an area of the cell where it is able to compete for substrate with said second glycosyltransferase, and wherein said second glycosyltransferase is capable of producing said carbohydrate.

20. A cell produced by a method according to claim 19.

21. An organ comprising a cell according to claim 20.

22. A non-human transgenic animal, organ or cell comprising the nucleic ~~acid~~ according to ~~any one of claims 1 to 11~~ claim 1.

23. An expression unit which expresses a nucleic acid according to ~~any one of claims 1 to 11~~ claim 1, resulting in a cell which is immunologically acceptable to an animal having reduced levels of a carbohydrate on its surface, which carbohydrate is recognised as non-self by said species.

24. An expression unit according to claim 23, selected from the group consisting of a retroviral-packaging cassette, retroviral construct or retroviral producer cell.

25. A method of producing an expression unit according to claim 23 ~~or claim 24~~, said unit having reduced levels of a carbohydrate on its surface wherein the carbohydrate is recognised as non-self by a species, comprising transforming/transfecting a retroviral packaging

Sub B3 cell or ~~a retroviral~~ producer cell with the nucleic acid of the invention ~~under conditions~~ such that the chimeric enzyme is produced.

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12 A1 add E5

add E7

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